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(ETS)

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(MOSS)

Archive of SID

(JIT)

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Archive of SID

PMSP-E/T  
M

PMSP-E/T

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$$\delta > 0 \quad \bar{x} \quad ( )$$

$$\delta \quad \bar{x} \quad \bar{x}_1 \quad \bar{x} \quad ( )$$

$$\bar{x} \quad ( ) \quad ( ) \quad ( )$$

$$\bar{x} \quad \bar{x}_1 \quad \bar{x} \quad \text{MOSS}$$

( )

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Surrogate constraint problem

( )

$$: \quad \bar{x}_2 \quad \bar{x}_1$$

$$f_i(\bar{x}_1) \leq f_i(\bar{x}_2) \quad i=1, \dots, q \quad ( )$$

$$f_i(\bar{x}_1) \prec f_i(\bar{x}_2) \quad \exists i=1, \dots, q \quad ( )$$

( )

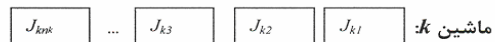
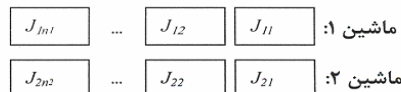
( )

k

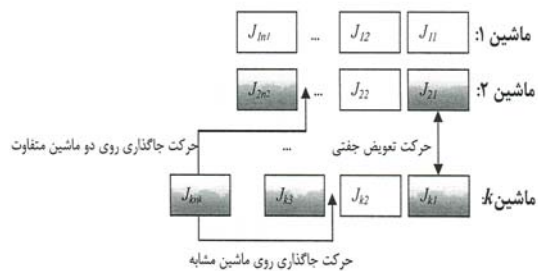
n<sub>k</sub>

n

( )



$J_{kl}$  کار انجام شده در موقعیت  $l$  از ماشین  $k$   
 $n_k$  تعداد کارهای انجام شده روی ماشین  $k$



Archi

N

N

α

α×N

$\alpha \times N$

N

$N, \alpha \times N$

$N,$

j-1

i

j-1

i

$k \times n^{1.5} / (m-0.5)$

/ k

Lingo 8

$\varepsilon,$

$$\zeta = \sum_{i=1}^k \frac{|f_i - F_i|}{w_i} \quad ( )$$

$f_i ( )$

$w_i$

i

$F_i$

N

i

$w_i$

$\eta$

$$\eta = \zeta_B - \zeta_A \quad ( )$$

B

A ( )

$\eta \leq 0$

A B

$\eta \leq 0$

A B

Aspiration

$\eta \geq 0$

A

B

Arch-Size

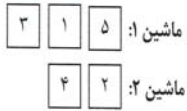
A

$\eta \geq 0$

A

( )

landa



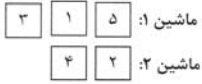
حل کمکی (۵-۱, ۲-۲, ۱-۱, ۳-۱, ۴-۲)



حل اولیه (۳-۱, ۵-۲, ۲-۲, ۴-۱, ۱-۱, ۲-۲)



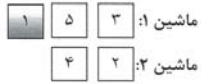
حل مرحله ۲ (۳-۱, ۵-۱, ۲-۲, ۴-۲, ۱-۲)



حل نهایی (۵-۱, ۲-۲, ۱-۱, ۳-۱, ۴-۲)



حل مرحله ۱ (۳-۱, ۵-۱, ۲-۲, ۴-۱, ۱-۲)



حل مرحله ۳ (۳-۱, ۵-۱, ۲-۲, ۴-۲, ۱-۱)

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RefSet<sub>2</sub>

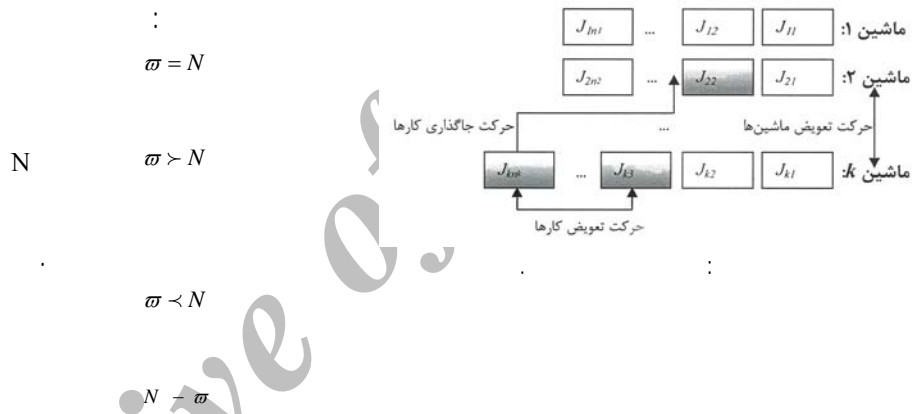
( )

$$b^*(b-1)/2$$

Mcuox

local-iteration

$\varpi$



( )

( ) RefSet<sub>1</sub>

( ) RefSet<sub>2</sub>

$b_2$   $b_1$

$$.Refset = b \leq b_1 + b_2$$

$b_1$

RefSet<sub>1</sub>

RefSet<sub>1</sub>

RefSet<sub>1</sub>

$b_2$

Matlab 7



$$SUMP = \sum_{i=1}^m \left( \frac{\sum_{j=1}^n P_{ij}}{n} \right)$$

( )

xp

RD

F ( )

/ RD / F

m n

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spacing

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spacing

$$s = \left[ \frac{1}{n-1} \sum_{i=1}^n (\bar{d} - d_i)^2 \right]^{1/2}$$

( )

d<sub>i</sub>

$\bar{d}$

d<sub>i</sub>

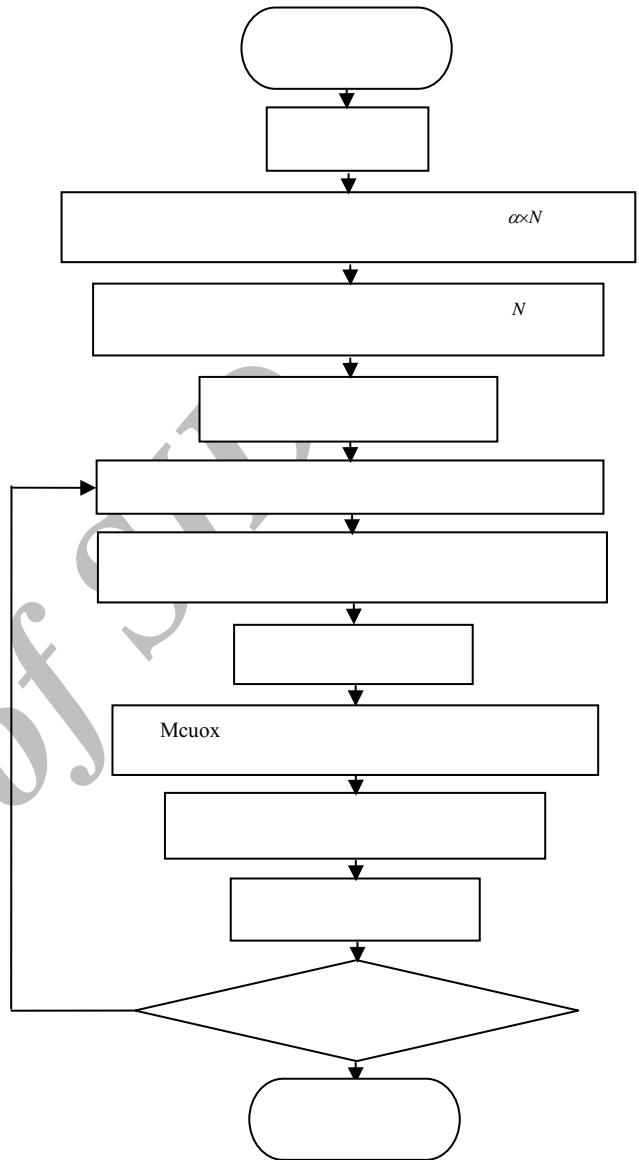
[ , ] :

[ , ] :

[ , ] :

[ ]

[[ (SUMP/2)(1-F-RD/2) ] [ (SUMP/2)(1-F+RD/2) ]]



$$D = \sqrt{\sum_{i=1}^n \max(\|x_i^i - y_i^i\|)} \quad ( )$$

m	n	
2	10	1
4	10	2
2	20	3
4	20	4

ETS	MOS <sub>S</sub>	spacing		ETS	Moss	
		ETS	MOS <sub>S</sub>			
58.11	302.5	385	77.4	9.2	21.5	1
24.9	116.1	85.5	14.4	10.8	30.7	2
100.6	326.5	806	382	12.6	76.3	3
68.06	149.3	313	112	12.2	68.8	4

N

Arch\_Size

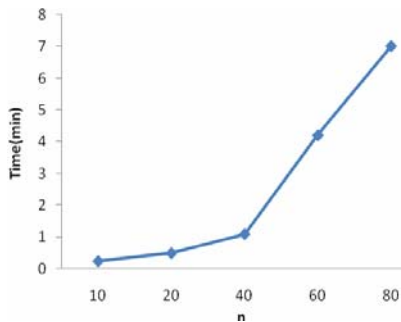
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b<sub>2</sub> b<sub>1</sub>

m	n	
4	40	1
6	40	2
4	60	3
6	60	4
4	80	5
6	80	6

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Arch\_Size

N

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$b_2$   $b_1$

		spacing				
ETS	MOS <sub>s</sub>	ETS	MOS <sub>s</sub>	ETS	MOS <sub>s</sub>	
177.3	150	1327	158	9.4	153	1
135.7	189	601	30	18.5	122	2
184	284	1034	679	18.9	143	3
90.8	212	1200	68	16.4	114	4
275.7	362	278	129	6.1	189	5
240.4	258	1499	471	18.3	103	6

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- 1 - Unrelated Parallel Machines
- 3 - Multi-Objective Scatter Search
- 5 - Just-In-Time
- 7 - Pareto Archive
- 9 - Multi-Component Uniform Order-Based Crossover

- 2 - Sequence-Dependent Setup Times
- 4 - Elite Tabu Search
- 6 - Non-Dominated Solutions
- 8 - Dynamic Ideal Point